

2017 Visitor Use Summary for Fossil Creek Wild and Scenic River

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Coconino National Forest
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Key Findings and Observations

2017 Statistics

	<u>2016</u>	<u>2017</u>
• Total number of permits reserved:	17,962	19,129
• Total number of cancellations:	606	422
• Total number of no-show permits:	4,937	5,310
• Total number of people that were let in:	47,927	52,301
• Total number of vehicles let in:	11,681	11,192
• Total number of unpermitted vehicles turned away:	3,872	2,067
• Total number of people turned away:	13,238	5,079
• Total pounds of trash collected:	4,463	2,490

Key Comparisons

- The number of vehicles turned away decreased by 1,805 (47%) from 2016 to 2017.
- The number of people visiting with a reservation increased by 4,374 (9%) in 2017.
- The amount of trash collected decreased from 11,511 pounds in 2015 to 4,463 pounds in 2016 to 2,490 pounds in 2017.
- The most common incident type in 2016 and 2017 was occupancy which includes parking violations versus sanitation and fire in 2015.
- The average number of people per vehicle increased 15% from 4.1 in 2016 to 4.7 in 2017.

Notable Observations

- A variety of actions taken by the Forest Service to reduce the no-show rate did not have a noticeable effect.
- Actions to distribute visitors to locations other than Fossil Springs and the Waterfall did not have a noticeable effect.
- Most of the reported Forest Service incidents were vehicles parking in the wrong parking lot.
- The Camp Verde access for Fossil Creek was closed from May 1st to May 16th to install eight new vault toilets to replace portable toilets. Both the Camp Verde and Strawberry sides were closed one day in July due to wet road conditions.
- On October 7th, the first Saturday when a permit was not needed, there were 164 cars in the canyon and 13 campsites with 100 people. Forest Service staff did not observe any camp fires.
- On October 7th there were 12 cars in the Fossil Springs parking lot by 8am. This is a reliable indicator of campers at Fossil Springs. Rangers estimate that approximately 40 people camped at Fossil Springs on the night of Oct 6th.
- Average daily use on the Fossil Springs trail and the Waterfall trail dropped below 20 people per trail in November 2016 and below 10 people per day on each trail in

December, January, and February.

Operational Changes from Last Year

- The permit season began on April 1st unlike 2016 when the season started May 1st due to delays in initial implementation of the reservation system.
- District staff developed an in-house road closure notification process resulting in faster delivery of closure messages to permit holders.
- The reservation for the Fossil Springs trailhead was renamed “Park/8-Mile Hike” to help distinguish it from the other parking locations that do not require a strenuous hike.
- Staff added more attractive photos of water play areas near each parking lot to encourage people to visit locations other than the Waterfall.
- Law enforcement presence and need was reduced from 2016 levels. The decline in need was possibly due to the public being more aware of the permit system.
- A new parking lot was built at Fossil Creek Bridge, eliminating remaining roadside parking within the permit boundary.
- Vault toilets were installed at the Waterfall, Irving/Flume, Tonto Bench, Fossil Creek Bridge, Homestead (upper and lower), and Mazatzal parking areas and at the 708/502 Junction.
- The Coconino National Forest website, Twitter feed, and Facebook page, were used to educate the public on the different swimming holes and recreation sites in the permit area in an effort to encourage people to explore locations besides the Waterfall Trail.
- Parking reservations were made available one month in advance on a rolling monthly basis. This was done to try to reduce the amount of people who did not show up or cancel.
- Trail counters were installed in fall 2016 on the Waterfall Trail and Fossil Springs Trail to assess winter use.
- The administrative fee charged by Recreation.gov for a parking reservation increased from \$6 to \$10 in May. The Forest Service does not receive any funding from this fee.

Overall Management Observations

2017 was the second year of the summer reservation system for Fossil Creek.

Forest Service personnel were stationed at the Fossil Springs Trailhead and the 708/502 junction every day to check permits. On the weekends and holidays there were rangers at the corrals or 260/708 junction to turn away non permitted vehicles and to educate the public about the permit system.

Most visitors that had a Fossil Springs permit checked in by 10:00 to begin the hike. On the weekends, two search and rescue personnel were stationed at the Fossil Springs Trailhead for a few hours in the morning to educate the public about the difficulty of the hike. Forest Service personnel educated permit holders about the level of difficulty while checking permits every day. They discouraged inexperienced hikers and encouraged proper hiking preparedness.

People who appeared unprepared to hike the Fossil Springs trail but had purchased a permit were offered the option of moving to an available parking space on the Camp Verde side. The permit for the Fossil Springs trail was labeled “Park/8-Mile Hike” to separate it from “Vehicle Parking” permits in the main Fossil recreation corridor. This was intended to educate visitors that the Fossil Springs trail includes a hike. While there is no way to quantify if this approach worked, it should be noted that by mid-season members of the public would knowingly reserve a “Park & 8 Mile Hike” permit because it was the only permit available. These forest visitors had no intention of hiking the Fossil Springs trail and drove to the HWY 260 entrance.

Many visitors to Fossil Creek went to the wrong entrance to gain access. Individuals would use the GPS on their smart phones that would direct them to Strawberry even though the road was closed. Forest Service personnel would redirect visitors to the correct gate. It has been suggested to separate Fossil Springs and Fossil Creek into completely different reservation areas on the Recreation.gov website.

On the Camp Verde access side, Forest Service personnel educated visitors about the swimming holes where they are parked, but many visitors would choose to hike up to four miles to the Waterfall trail. In an effort to decrease possible search and rescue incidents, Forest Service personnel tried to accommodate forest visitors on the slower days of the season and move visitors to more desirable parking areas that were not going to be filled. Typically a permit holder was moved from the Mazatzal parking area to park in Homestead on a weekday if the permit holder informed USFS personnel of their plans to hike with their family to the Waterfall. It is never advised for members of the public to hike from Mazatzal or Purple Mountain with kids or dogs, yet several families continue to do so. At the 502/708 Junction USFS personnel consistently passed out 5 gallons of water a day to visitors hiking along the road.

The Verde Watershed Ambassadors worked in Fossil Creek for a total of 12 weekends from June through September. The Ambassadors set up an education station at the Waterfall trailhead to inform forest visitors about responsible recreation and to raise awareness about water quality issues. While working at the education station, the Ambassadors made 1,238 educational contacts. They also cleaned up trash and did erosion control work. Of the total amount of trash removed in 2017, the Ambassadors reported 610 pounds. The Ambassadors are a program of the Oak Creek Watershed Council. The work in Fossil Creek was funded by the Forest Service in 2016 and 2017. Currently, there is no funding available for summer 2018.

Methods

Data were collected by Forest Service personnel at three locations: Fossil Springs Trailhead, the 708/502 junction in Fossil Creek, and the 260/708 junction. Forest Service personnel filled out data sheets and turned them in at the office on a daily basis. Data at the 260/708 junction is collected on the weekends and holidays that fell on a week day. October 1st data, the last day of the reservation season, were included in the totals for September.

Vehicles were counted at the gates when their permits were validated. Vehicles turned away without a permit were also counted at the gate. The number of people was calculated by

adding up the group size from the Daily Arrival Report (DAR) of those permits used for the day. Some groups were larger or smaller than what was indicated on the DAR. Forest Service personnel made note of changes in group size on the DAR. The number of people turned away was calculated by counting the number of individuals in the vehicle. If the number of people turned away was not included on the data sheet, then a 3.89 person per car ratio, established in previous years, was used to estimate the number of people turned away.

The average group sizes for vehicles turned away and let in were calculated by dividing the total number of people by the total number of vehicles. The average group size for permits reserved, which includes no-shows, was created in a statistical report through www.recreation.gov.

No-shows were counted daily at the end of the day by Forest Service personnel by counting up the names that were not crossed off on the DAR. The statistics for the total number of permits reserved and cancelled were generated using the website www.recreation.gov.

The no-show rate was calculated by dividing the total no shows by total number of permits reserved. Data for incidents was gathered when personnel were on patrol and was recorded daily.

Forest Service field staff kept a daily record of law enforcement incidents. Emergency incidents (911 calls) were collected from the county sheriffs' offices in November.

Results

Motor Vehicles

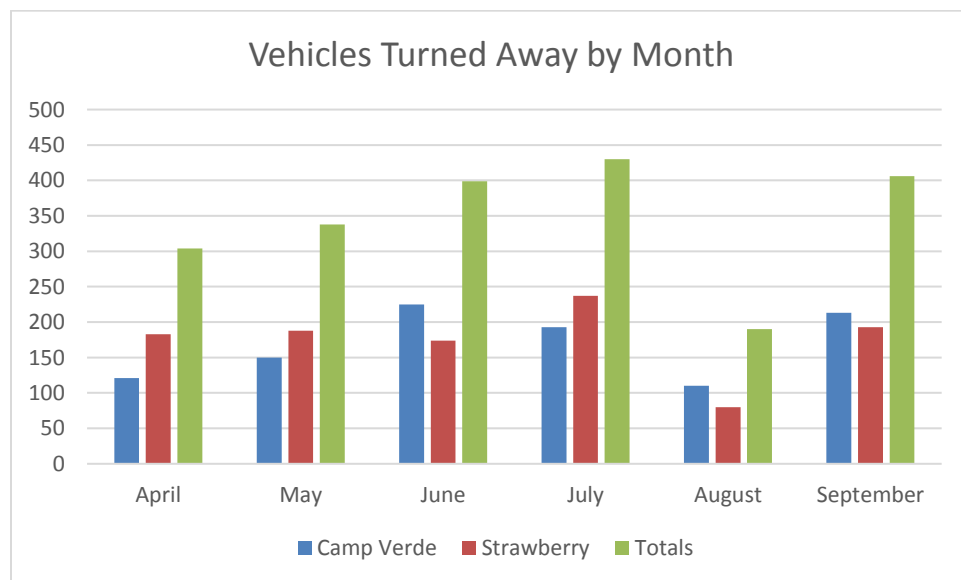


Figure 1. The total number of vehicles turned away each month at each location and the combined total of the two locations.

July had the most total vehicles turned away. The number of vehicles turned away peaked in July and then decreased in August (Figure 1). One reason for the high numbers of vehicles turned away on the Strawberry side could be from the number of individuals that use GPS on their smart phones to get to Fossil Creek. Individuals believe that FR 708 is still open even though it has been closed for the last the five years. The decline in August was likely due to frequent monsoon rains.

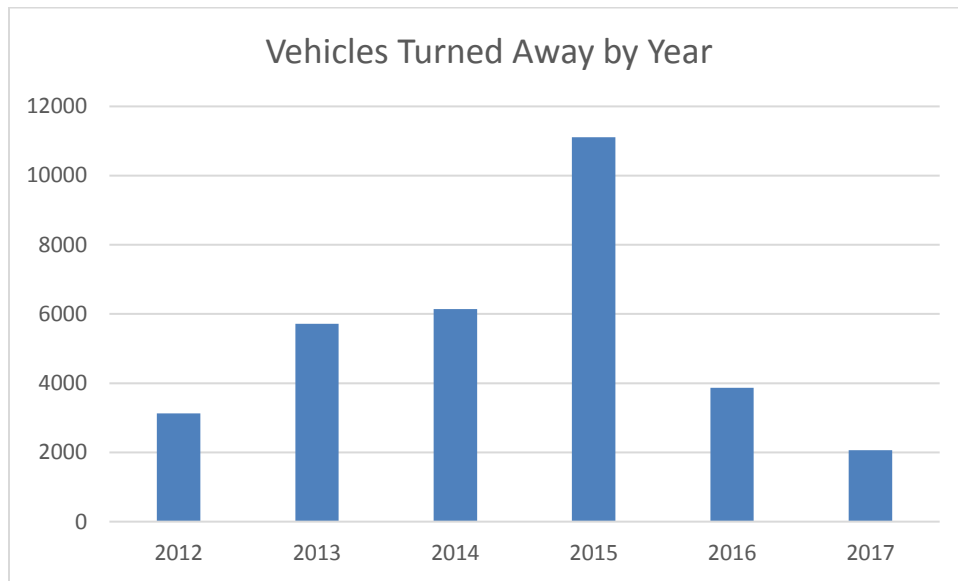


Figure 2. The yearly combined total of vehicles turned away at Strawberry and Camp Verde entrances.

The number of vehicles turned away decreased substantially between 2015 and 2016 due to the implementation of the parking reservation system (Figure 2). The number of vehicles turned away decreased by approximately half in 2017 compared to 2016. The 2017 permit season started one month earlier than 2016.

Visitor Use

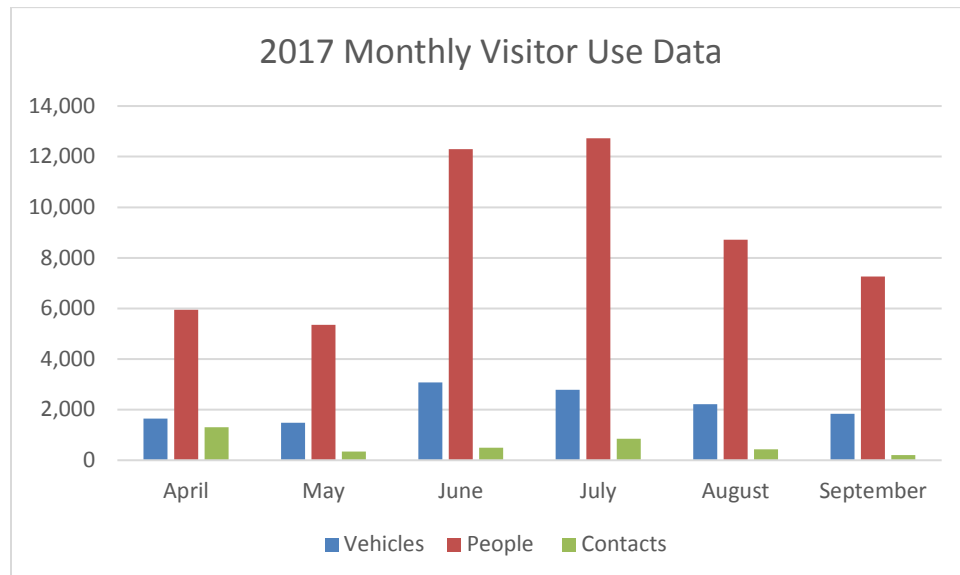


Figure 3. The monthly total of permitted vehicles let in to Fossil Creek/Fossil Springs, people in permitted vehicles, and field contacts (individuals that talked to personnel past the gate), along the 708 and 502 roads.

Visitor use peaked in the month of July (Figure 3). The total number of contacts in 2017 was 4,876 which is up from 2,547 in 2016. The total number of contacts includes 1,238 made by the Verde Watershed Ambassadors.

Year	Total Visitors	Estimated Total People Turned Away
2012	90,396	10,407
2013	88,552	22,224
2014*	34,602	23,911
2015	86,333	43,229
2016	47,927	13,238
2017**	52,301	5,079

Table 1. A yearly comparison of visitor numbers from 2012 to 2017.

*There was a complete closure of the area because of a wildfire hazard in 2014 for one month.

**The 2017 permit season started one month earlier and there was a closure for bathroom installation on the Camp Verde side from May 1st to May 16th.

Forest Service staff observed a substantial (62%) decline in the number of people turned away in 2017 (Table 1). This change was most likely due to growing public awareness of the

reservation system. The number of visitors using the reservation system also increased by 9% in 2017. This growth may be due to a combination of factors including the longer reservation season and the increasing number of people per vehicle.

Permits

The total number of permits reserved for the 2017 season was 19,129 and the total number of cancellations was 422. The net total of permits was 18,707. The average group size per permit was 4.2. The total number of permits reserved over the phone was 447 and 18,682 permits were reserved using the internet. All parking lots except for Fossil Springs were closed for two weeks in May for toilet installation.

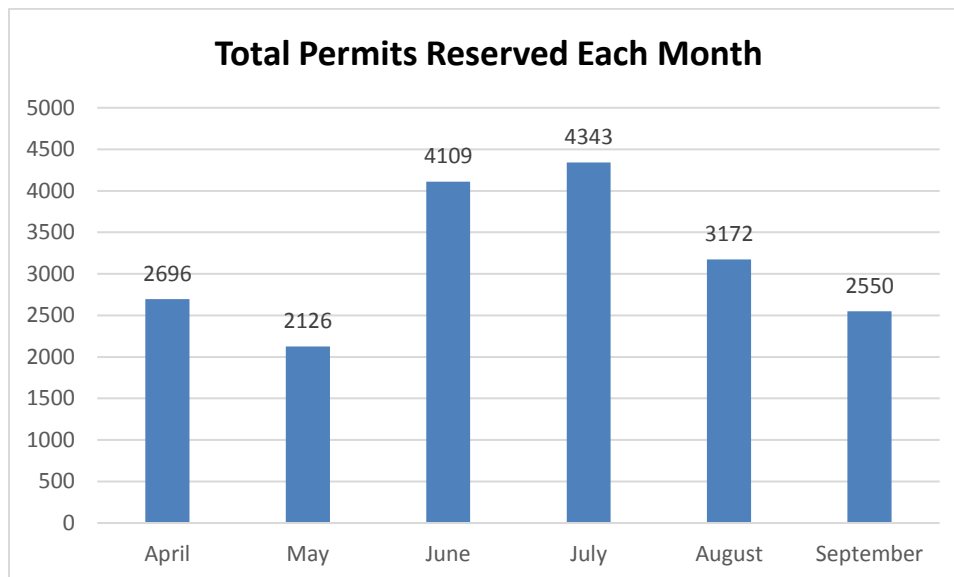


Figure 4. The total number of permits reserved each month for all parking lots.

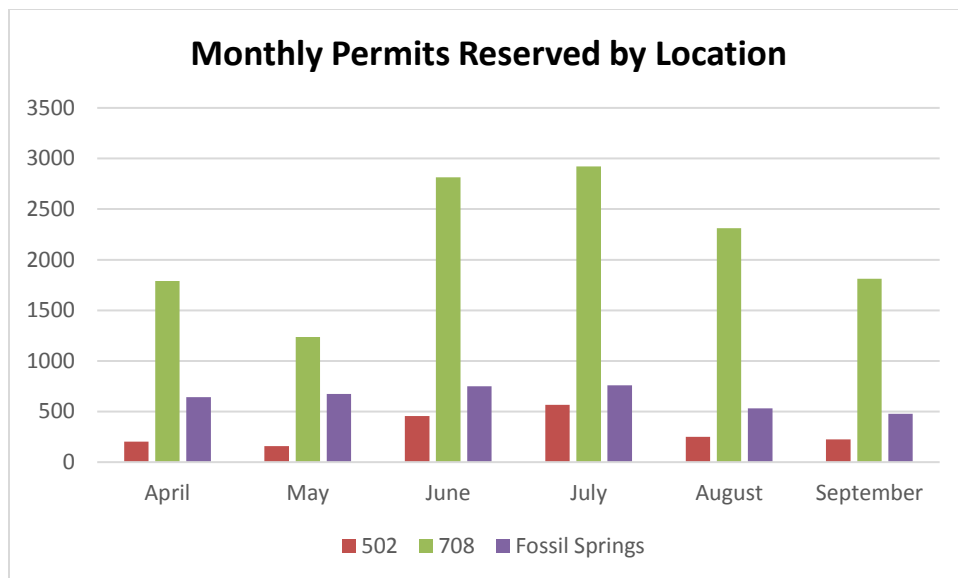


Figure 5. The total number of permits reserved each month for FR 708, FR 502, and Fossil Springs Trailhead.

The amount permits reserved increased from May until July and then decreased. The peak of permits reserved was in July with a total of 4,343. Then it decreased in the months of August and September (Figures 4 & 5). The decrease in permits reserved was noticed about the time when school started and monsoon rains began. There was a decline of permits reserved on weekdays in August and September. Every weekend continued to be fully booked until the end of the permit system.

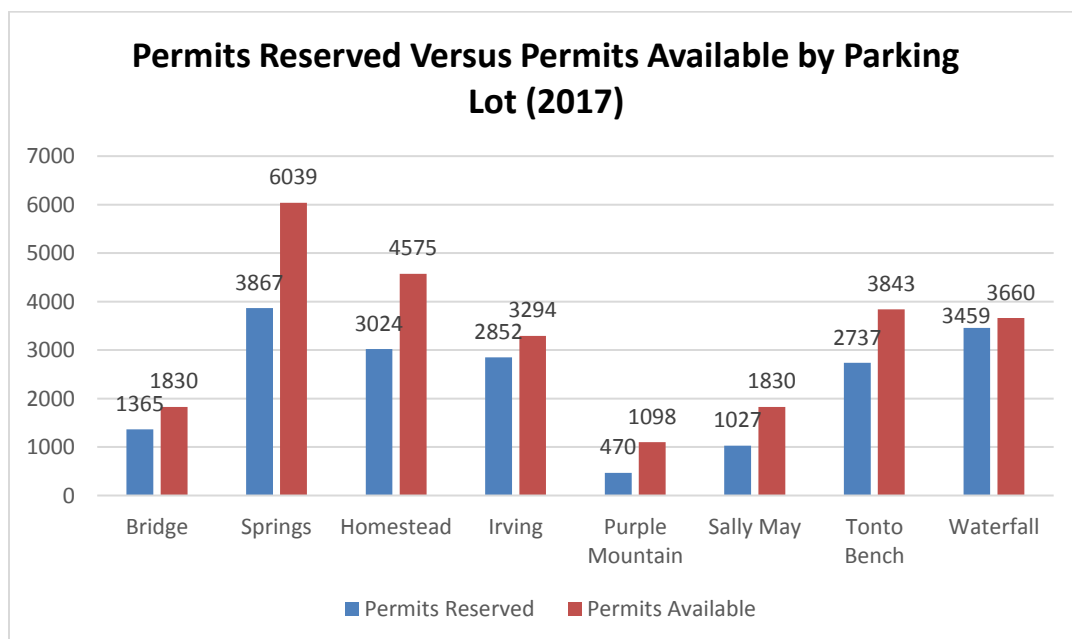


Figure 6. Total permits reserved at each parking lot and the total number of permits available for each lot for the 2017 permit season.

26,169 reservations are available during the 6-month permit season. In 2017, visitors made 19,129 reservations leaving 7,040 parking spaces unreserved. Almost all of the permits for the Waterfall Trailhead parking lot were reserved. The Waterfall Trailhead parking lot was in high demand because of its proximity to the Waterfall. All other parking lots had unused capacity, particularly on weekdays.

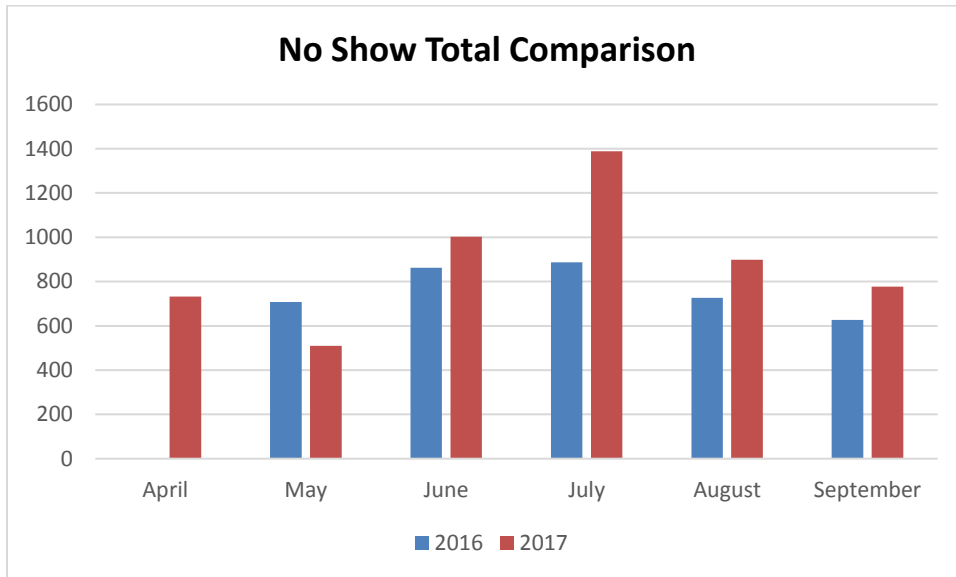


Figure 7. The total number of no shows by month for 2016 and 2017.

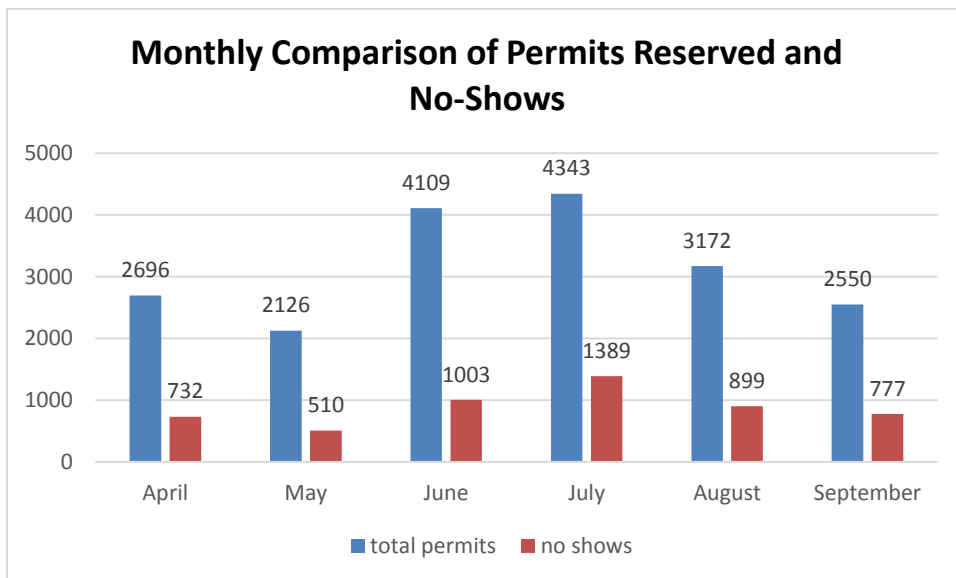


Figure 8. A monthly comparison of total number of permits reserved and total number of no-shows.

No-shows are the individuals who bought a permit, did not come to Fossil Creek, and did not cancel. The month of July had the most no-shows (Figure 7). The combined total number of no-show permits was 5,310, a 28% rate for the year. The no-show rate was 26% in 2016. No-shows by month ranged from lowest in May and June at 24% to highest in July at 32%. Apparently, the increase in the reservation fee from \$6 to \$10 did not affect the no-show rate. In addition, using rolling monthly reservation availability did not reduce the proportion of no-shows.

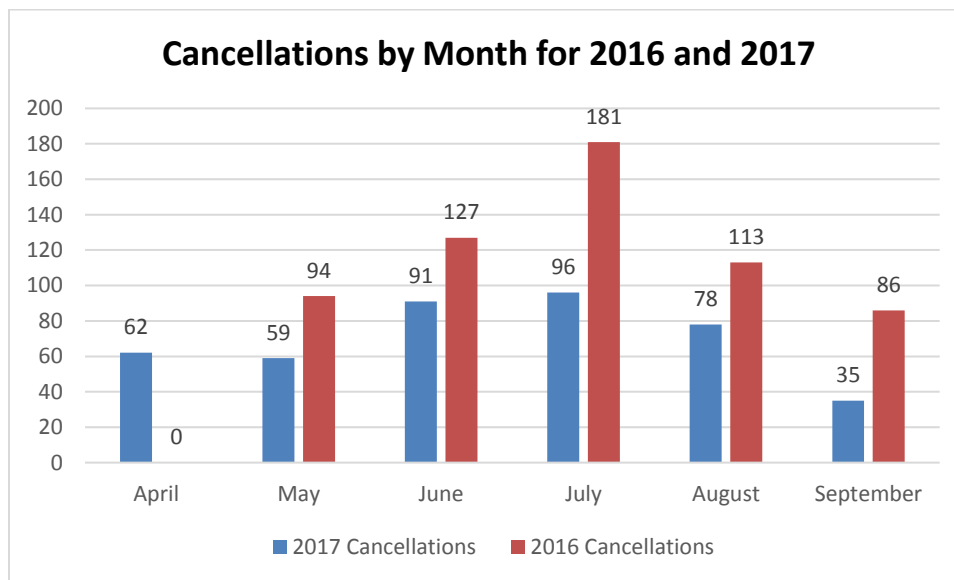


Figure 9. The total number of cancellations each month for all parking lots in 2016 and 2017. There were no cancellations in April 2016 because there were no permits until May that year.

Permits reserved and number of cancellations peaked in the month of July (Figure 9). The overall number of cancellations declined 30.4% from 606 in 2016 to 422 in 2017.

Incidents

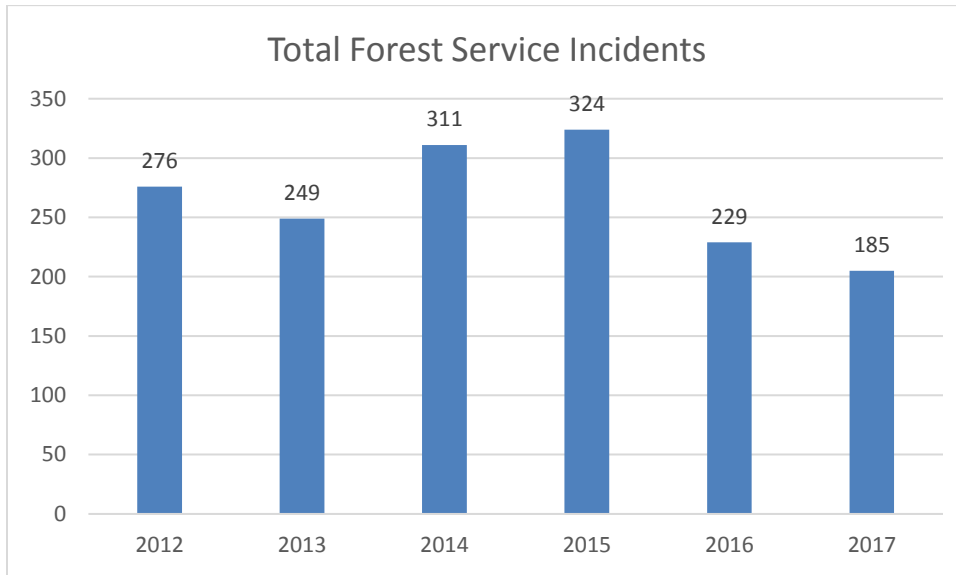


Figure 11. A yearly comparison of total incidents from 2012-2017. Total Forest Service incidents decreased to the lowest number in six years.

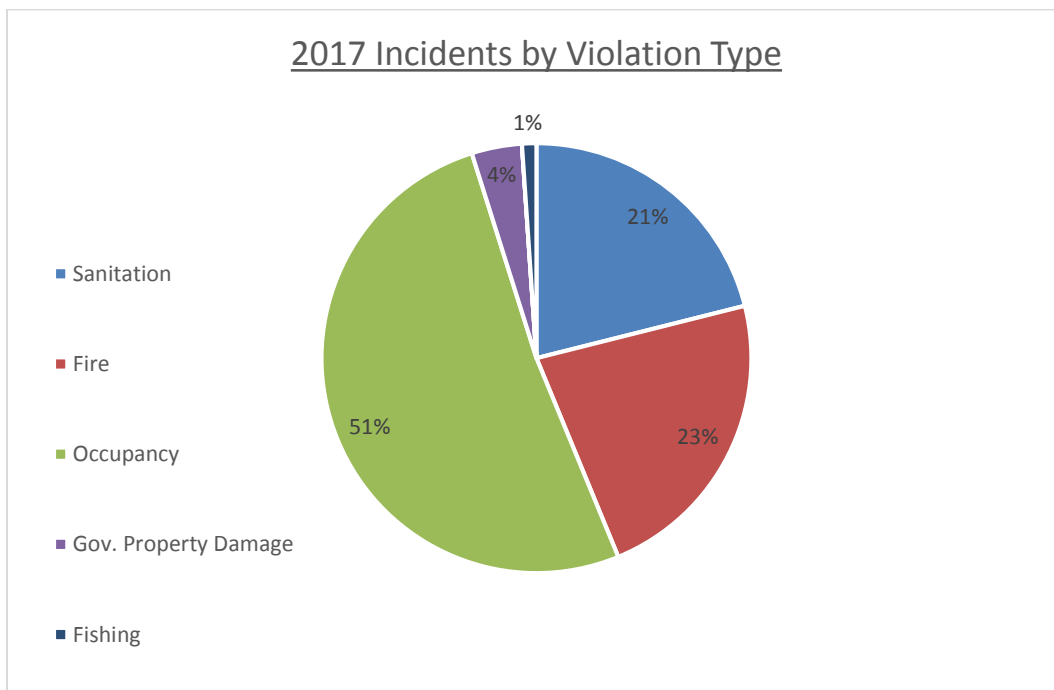


Figure 12. Forest Service incidents by violation type.

The total number of Forest Service incidents recorded showed a decrease from the previous six years (Figure 11). Occupancy was the most reported incident type (Figure 12). Occupancy

includes violations such as illegal camping and parking violations. The majority of occupancy violations were vehicles parking in the wrong lot or not displaying a permit. Sanitation and fire incidents were down from the previous year. There were two observed fishing violations.

Incident Type	2015	2016	2017
Sanitation	138	22	39
Fire	129	22	42
Occupancy	34	158	95
Gov. Property Damage	15	26	7
Timber	5	0	0
Wildlife Harassment	3	0	0
Fishing	0	1	2
Total	324	229	185

Table 2. Comparison of incident types between 2015, 2016 and 2017.

Sanitation and fire incidents are significantly lower in 2016 and 2017 because camping was prohibited in the Fossil Creek permit area. The installation of vault toilets decreased human waste sanitation incidents but increased garbage (sanitation) left by forest visitors inside vault toilet trash cans. Occupancy incidents increased in 2016 to 158 from 34 in 2015 and then decreased in 2017 from 158 to 95. Most of the occupancy incidents are either parking in the wrong lot or not displaying a permit. There was less need for Forest Service law enforcement presence this season.

Other Incidents reported by County Sheriff's Offices

County SO Reported Incidents (Yearly Totals)			
Type of Call	2015	2016	2017
Search & Rescue	20	9	12
Medical	18	9	6
Welfare Check	0	1	3
Motor Assist	1	1	0
Agency Assist	0	1	2
Forest Service	0	1	0
Citizen Assist	2	0	2
Suspicious Act	2	0	0
Lockout	1	0	0
PI Incident (Car Accident)	1	0	0
Reckless Driving	2	0	0
USFS Unknown Violation	1	0	0
Extra Patrol Request	1	0	0
Fatalities	0	2	1
Total	49	24	26

Table 3. A comparison of total number of reported calls by type in 2015, 2016 and 2017. During the reservation season there were 21 incidents reported in 2016 and 22 incidents in 2017.

The total number of calls for Fossil Creek decreased from 49 in 2015 to 24 in 2016 (Table 3). Search and rescue numbers reported are similar for 2017 with 26 total incidents reported by Gila County S.O. Search & Rescue calls went down from 20 in 2015 to 9 in 2016. There were 12 Search and Rescue related calls in 2017.

Type of Incident	People			Incidents		
	2015	2016	2017	2015	2016	2017
Dehydration/Unprepared	36	68	25	14	12	12
Lost or Missing	25	8	14	13	2	3
Major Accidents	8	2	3	9	1	2
Minor Injuries	9	1	2	9	1	4
Other	11	26	5	10	7	5
Total	89	104	49	55	26	26

Table 4. The total number type of incidents and total number of people comparison between 2015 and 2016.

The total number of people is greater than the total number of incidents because multiple people were involved in some incidents (Table 4).

Location of Incidents	2015	2016	2017
Fossil Creek Rd.	11	0	0
Fossil Springs Trail	25	12	14
The Bowl	2	1	1
Waterfall	7	2	2
Tonto Bench	0	1	0
Fossil Creek Bridge	0	1	0
Mazatzal	0	1	0
Fossil Creek General Area	4	3	2
The Dam	1	0	3
Irving Lot	1	0	0
M3 TH	1	0	1
Sally May	1	0	0
Waterfall Trail	1	1	2
Flume Trail	1	0	1
Total	55	22	26

Table 5. Comparison of incident locations 2015-2017.

Recommendations

One recommendation to help decrease the amount of no-shows is to change how far in advance one can secure a permit. For example, 80% of permits would be available to be purchased more than a month in advance and 20% of the permits would only be available one to two days in advance.

There is a need to better distinguish between Middle Fossil and Fossil Springs. Many individuals get permits for Fossil Springs thinking it is near water and is a short hike to the waterfall or just get one because it is the only lot available. Some visitors are not aware of the difficulty or length of the hike. One way to alleviate this problem may be to create two reservation systems. One for Fossil Springs and one for Middle Fossil. More detailed information about the Fossil Springs hike can be put on the website. The separate reservation systems may help reduce the number visitors going to the wrong entrance to gain access to Fossil Creek. If a separate reservation system is implemented, then consider having the Tonto National Forest manage the Fossil Springs entrance.

One suggestion to help save on Forest Service vehicle repair costs in the long run is the use of UTVs. UTVs would be used to drive to the 708/502 junction and to patrol the parking lots. Trucks would still be needed to haul supplies for projects in Fossil Creek. Limitations to the use

of UTVs include the initial expense of purchasing them and the crew would need additional training to use them. Safety may be a limitation because the crew may be inexperienced in using UTVs and rollovers are a possibility as well. Rollovers could happen because of human and/or manufacture error. UTVs could make personnel more accessible or approachable while out patrolling.

Summary

Implementation of the second year of the Fossil Creek permit reservation system resulted in several improvements. The total number of visitors increased and the number of people arriving without a reservation declined. Law enforcement incidents and the amount of trash continued to decrease. However, efforts to reduce the no-show rate and to encourage people to visit locations other than the Waterfall were not successful. Overall, most visitors contacted by rangers appreciated the permit system. Several groups of people did note that they wanted camping to still be permitted during the summer season.